



**USER CHARGE SYSTEM  
AND  
SEWER USER ORDINANCE  
VILLAGE OF HIGHLAND, WISCONSIN  
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**APPENDICES**

Appendix A	Sewer User Charge System
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**VILLAGE OF HIGHLAND**

**Ordinance No. 1997-1**

An Ordinance establishing a sewer use and user charge system in the Village of Highland, County of Iowa, State of Wisconsin, to provide procedures, safeguards and funds to operate and maintain and meet WPDES permit limits at the Village of Highland wastewater collection system and pay for wastewater treatment costs; and

Whereas, the Village of Highland, Wisconsin, owns and operates a wastewater treatment works; and

Whereas, the Village of Highland must pay all the operation and maintenance expenses associated with said treatment works and charge the users of said treatment works accordingly; and

Whereas, the Village of Highland by accepting wastewater assumes all risk for treatment and meeting their WPDES permit but reserve the right to immediately discontinue acceptance of wastewater for operational and permit reasons; and

Now, therefore, be it ordained by the Village of Highland that the following user charge system be established:

## ARTICLE I

### INTRODUCTION AND GENERAL PROVISIONS

This Ordinance regulates the use of public and private sewers and drains, discharge of septage into the public sewerage system, and the discharge of waters and wastes into the public sewerage systems within the Village of Highland. It provides for and explains the method used for levying and collecting wastewater treatment service charges, sets uniform requirements for discharges into the wastewater collection and treatment systems and enables the Village of Highland to comply with administrative provisions, and other discharge criteria which are required or authorized by the State of Wisconsin or Federal law. Its intent is to derive the maximum public benefit by regulating the characteristics of wastewater discharged into the Village of Highland sewerage system.

This Ordinance provides a means for determining wastewater and septage volumes, constituents and characteristics, the setting of charges and fees, and the issuing of permits to certain users. Revenues derived from the application of this Ordinance shall be used to defray the costs of operating and maintaining adequate wastewater collection and treatment systems and to provide sufficient funds for capital outlay, debt service costs and capital improvements. The charges and fees herein have been established pursuant to requirements of the Wisconsin Statutes. This Ordinance shall supersede any previous Ordinance, Rules or Regulations; and shall repeal all parts thereof that may be inconsistent with this Ordinance. If there is any conflict between this Ordinance and any applicable Statute, the State Statute shall be controlling.

## ARTICLE II

### DEFINITIONS

Unless the context specifically indicates otherwise, the meaning of terms used in this Ordinance shall be as follows:

APPROVING AUTHORITY shall mean the Village of Highland, or its duly authorized committee, agent, or representative.

AMMONIA NITROGEN ( $\text{NH}_3\text{-N}$ ) shall mean one of the oxidation states of nitrogen, in which nitrogen is combined with hydrogen in molecular form as  $\text{NH}_3$  or in ionized form as  $\text{NH}_4$ . Quantitative determination of ammonia nitrogen shall be made in accordance with procedures set forth in "Standard Methods" or Chapter NR 149 of the Wisconsin Administrative Code.

BIOCHEMICAL OXYGEN DEMAND (BOD) shall mean the quantity of oxygen utilized in the biochemical oxidation of organic matter in five (5) days at 20 degrees Centigrade, expressed as milligrams per liter. Quantitative determination of BOD shall be made in accordance with procedures set forth in the most recent edition of "Standard Methods".

BUILDING DRAIN shall mean that part of the lowest horizontal piping of a drainage system which receive the discharge from soil, waste, and other drainage pipes inside the wall of the building and conveys it to the building sewer.

BUILDING SEWER shall mean the extension from the public sewer or other place of disposal beginning outside the inner face of the building wall.

CHEMICAL ELEMENTS AND COMPOUNDS that are typically found in wastewater and may be regulated by this ordinance: These are as follows:

Aldrin	$\text{C}_{12}\text{H}_8\text{Cl}_6$
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Ammonia Nitrogen	
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Arsenic	As
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Benzene	
---------	--

Benzo(a) Anthracene	$\text{C}_6\text{H}_4(\text{CH}_2)\text{C}_6\text{H}_4(\text{CH}_2)\text{C}_6\text{H}_4$
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Benzo(a) pyrene	$\text{C}_{30}\text{H}_{12}$
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Beryllium	Be
BIS (2-Ethylhexyl) Phthalate	$(C_3H_7(C_2H_5)CHCH_2OCO)_2C_6H_4$
Cadmium	Cd
Carbon Tetrachloride	$CCl_4$
Chlordane	$C_{10}H_6Cl_8$
Chloroform	$CHCl_3$
Copper	Cu
Chromium	Cr
Cyanide	Cn
DDT	$(ClC_6H_4)_2CHCCl_3$
DDD	$(ClC_6H_4)_2CHCHCl_2$
DDE	$(C_{10}H_7Cl)_2$
Dieldrin	$C_{12}H_{10}OCl_6$
3,3-Dichlorobenzidine	$C_6H_3Cl_2NH_2C_6H_3Cl_2NH_2$
Dichloromethane	$CH_2Cl_2$
2,4-D	$C_6H_3(OCH_2(OOH)Cl)_2$
Dimethyl Nitrosoamine	$(CH_3)_2NNO$
Endrin	$C_{12}H_{10}OCl_6$
Heptachlor	$C_{10}H_7Cl_7$
Hexachlorobenzene	$C_6Cl_6$
Hexachlorobutadiene	$C_4Cl_6$

Lead	Pb
Lindane	$C_6H_6Cl_6$
Malathion	$C_{10}H_{19}O_6PS_2$
Mercury	Hg
Molybdenum	Mo
Nickel	Ni
Nitrogen	N
PCB's	$C_{12}H_{10}$
	$C_{12}H_9Cl$
	$C_{12}H_8Cl_2$
	$C_{12}H_7Cl_3$
	$C_{12}H_6Cl_4$
	$C_{12}H_5Cl_5$
	$C_{12}H_4Cl_6$
	$C_{12}H_3Cl_7$
	$C_{12}H_2Cl_8$
	$C_{12}H_1Cl_9$
	$C_{12}Cl_{10}$
	$C_6Cl_5OH$
Pentachlorophenol	
Phenanthrene	$C_{14}H_{10}$
Phenol	$C_6H_5OH$

Phosphorous	P
Phosphate	PO <sub>4</sub>
Radium	Ra
Selenium	Se
Tetrachloroethylene	CCl <sub>2</sub> CCl <sub>2</sub>
Toxaphene	C <sub>10</sub> H <sub>10</sub> C <sub>18</sub>
Trichloroethylene	CHClCCl <sub>2</sub>
2,4,6-trichlorophenol	C <sub>6</sub> H <sub>2</sub> Cl <sub>3</sub> OH
Vinyl Chloride	CH <sub>2</sub> CHCl
Zinc	Zn

COMPATIBLE POLLUTANTS shall mean biochemical oxygen demand, suspended solids, phosphorus, ammonia, or pH, plus additional pollutants identified in the WPDES permit for the publicly owned treatment works receiving the pollutant if such works were designed to treat such additional pollutants to a substantial degree.

FLOATABLE OIL shall mean oil, fat, or grease in a physical state such that it will separate by gravity from wastewater by treatment in an approved pretreatment facility. All wastewater shall be considered free of floatable fat if it is properly pretreated and the wastewater does not interfere with the collection or treatment system.

GARBAGE shall mean the residue from the preparation, cooking, and dispensing of food, and from the handling, storage, and sale of food products and produce.

GROUND GARBAGE shall mean the residue from the preparation, cooking, and dispensing of food that has been shredded to such degree that all particulates measure no greater than one-half (1/2) inch in any dimension and will be carried freely in suspension under normal flow conditions in sewers.

HOLDING TANK SERVICE AREA shall mean the area outside the POTW's sewer service area, but inside or equal to the POTW's planning area where a contract has been developed for holding tank wastewater to be treated at the Wastewater Treatment Facility.



INCOMPATIBLE POLLUTANTS OR WASTEWATER shall mean wastewater with pollutants or of such a strength that will adversely affect or disrupt the wastewater treatment processes or effluent quality or sludge quality if discharged to the sewerage system facility.

INDUSTRIAL WASTE shall mean the wastewater from industrial process, trade, or business, as distinct from sanitary sewage, including cooling water and the discharge from sewage pretreatment facilities.

LICENSED DISPOSER shall mean a person or business holding a valid license to do septage servicing under NR 113.

MAY is permissible.

MUNICIPAL WASTEWATER shall mean the wastewater of a community. From the standpoint of source, it may be a combination of the liquid and water-carried wastes from residences, commercial buildings, industrial plants and institutions, together with any groundwater, surface water, and stormwater that may have entered inadvertently the sewerage system.

NATURAL OUTLET shall mean any outlet, including storm sewers, into a water course, pond, ditch, lake or other body of surface water or groundwater.

PARTS PER MILLION shall mean a weight-to-weight ratio; the parts per millions value multiplied by the factor 8.34 shall be equivalent to pounds per million gallons of water.

PERSON shall mean any and all persons, including any individual, firm, company, municipal or private corporations, association, society, institution, enterprise, government agency, or other entity.

pH shall mean the logarithm of the reciprocal of hydrogen ion concentration. The concentration is the weight of hydrogen ions, in grams per liter of solution. Neutral water for example, has a pH value of 7 and a hydrogen ion concentration of  $10^{-7}$ .

PUBLIC SEWER shall mean any sewer provided by or subject to the jurisdiction of the Village of Highland. It shall also include sewers within or outside the corporate boundaries that serve one or more personnel, which ultimately discharge into the Village of Highland sanitary sewer system, even though those sewers may not have been constructed with Village of Highland funds.

SANITARY SEWAGE shall mean a combination of liquid and water-carried wastes discharged from toilets and/or sanitary plumbing facilities, together with such ground, surface, and storm waters as may have inadvertently entered the sewerage system.

SANITARY SEWER shall mean a sewer that carries liquid and water-carried wastes from residences, commercial buildings, industrial plants, and institutions, together with small quantities of ground, storm, and surface waters that are not admitted intentionally.

SEPTAGE shall mean the wastewater or contents of septic or holding tanks, dosing chambers, grease interceptors, seepage beds, seepage pits, seepage trenches, privies or portable restrooms.

SEWAGE is the spent water of a community. The preferred term is "municipal wastewater".

SEWER SERVICE AREAS are the areas presently served and anticipated to be served by a municipal wastewater collection system. State regulations (NR 121.05) require that water quality management plans delineate sewer service areas of urban areas with a population of over 10,000. Approved facility plans contain less detailed sewer service areas for communities under 10,000 population.

SEWER SERVICE CHARGE is a service charge levied on users of the wastewater collection and treatment facilities for payment of use-related capital expenses as well as the operation and maintenance costs, including replacement of said facilities.

SEWER SYSTEM means the common sanitary sewers within a sewerage system which are primarily installed to receive wastewaters directly from facilities which convey wastewater from individual structures or from private property, and which include service connection "Y" fittings designed for connection with those facilities. The facilities which convey wastewater from individual structures, from private property to the public sanitary sewer, or its equivalent, are specifically excluded from the definition of "sewerage collection system"; except that pumping units and pressurized lines for individual structures or groups of structures may be included as part of a "sewer system" when such units are cost-effective and are owned and maintained by the sewerage owner.

SEWERAGE SYSTEM means all structures, conduits and pipes, by which sewage is collected, treated, and disposed of, except plumbing inside and in connection with buildings served, and service pipes, from building to street main.

"SHALL" is mandatory.

SLUG LOAD shall mean any substance released at a discharge rate and/or concentration which cause interference to wastewater treatment processes or plugging or surcharging of the sewer system.

STANDARD METHODS shall mean the examination and analytical procedures set forth in the most recent edition of "Standard Methods for the Examination of Water, Sewage, and Industrial Wastes" published jointly by the American Public Health Association, the American Water Works Association and the Water Pollution Control Federation.

STORM DRAIN (sometimes termed "storm sewer") shall mean drain or sewer for conveying surface water, groundwater, subsurface water or unpolluted water from any source.

STORMWATER RUNOFF shall mean that portion of the rainfall that is collected and drained into the storm sewers.

SUSPENDED SOLIDS shall mean solids that either float on the surface of, or are in suspension in, water, wastewater, septage, or other liquids, and that is removable by laboratory filtering as prescribed in "Standard Methods" and is referred to as nonfilterable residue.

WASTEWATER FACILITIES shall mean the structures, equipment, and processes required to collect, carry away, store, and treat domestic and industrial waste and dispose of the effluent and sludge.

WASTEWATER TREATMENT WORKS shall mean an arrangement of devices and structures for treating wastewater, industrial waste, and sludge. Sometimes use as synonymous with waste treatment.

WATERCOURSE shall mean a natural or artificial channel for the passage of water, either continuously or intermittently.

WPDES PERMIT is the Wisconsin Pollution Discharge Elimination System Permit issued by the Wisconsin Department of Natural Resources.

### ARTICLE III

#### MANAGEMENT, OPERATION, AND CONTROL

The management, operation, and control of the sewer system for the Village of Highland vested in the Village Board; all records, minutes and all written proceedings thereof shall be kept by the Village Clerk; the Village Treasurer shall keep all the financial records.

CONSTRUCTION. The Village of Highland shall have the power to construct sewer lines for public use, and shall have the power to lay sewer pipes in and through the alleys, streets, and public grounds of the Village of Highland; and generally, to do all such work as may be found necessary or convenient in the management of the sewer system. The Village of Highland shall have power by themselves, their officers, agents, and servants, to enter upon any land for the purpose of making examination or supervise in the performance of their duties under this Ordinance, without liability therefore; and the Village of Highland shall have power to purchase and acquire for the Village of Highland all real and personal property which may be necessary for construction of the sewer system, or for any repair, remodeling, or additions thereto.

MAINTENANCE OF SERVICES. The Owner shall maintain sewer service from the street main to the house and including all controls between the same, without expense to the Village of Highland, except when they are damaged as a result of negligence or carelessness on the part of the Village of Highland. All sewer services must be maintained free of defective conditions, by and at the expense of the Owner or occupant of the property. When any sewer service is to be relaid and there are two or more residences on such service, each building shall be disconnected from such service and a new sewer service shall be installed for each building.

CONDEMNATION OF REAL ESTATE. Whenever any real estate or any easement therein, or use thereof, shall in the judgment of the Village of Highland be necessary to the sewer system, and whenever, for any cause, an agreement for the purchase thereof, cannot be made with the Owner thereof, the Village of Highland shall proceed with all necessary steps to take such real estate easement, or use by condemnation in accordance with the Wisconsin Statutes and the Uniform Relocation and Real Property Acquisition Policy Act of 1970, if Federal Funds are used.

TITLE TO REAL ESTATE AND PERSONALTY. All property, real, personal, and mixed, acquired for the construction of the sewer system, and all plans, specifications, diagrams, papers, books and records connected therewith said sewer system, and all buildings, machinery, and fixtures pertaining thereto, shall be the property of the Village of Highland.

## ARTICLE IV

### USER RULES AND REGULATIONS

GENERAL. The rules, regulations, and sewer rates of the Village of Highland hereinafter set forth shall be considered a part of the contract with every person, company or corporation who is connected to or uses the Village of Highland sewer system or wastewater treatment facility and every such person, company or corporation by connecting with the sewer system or wastewater treatment facility shall be considered as expressing their assent to be bound thereby. Whenever any of said rules and regulations, or such others as the Village of Highland may hereafter adopt, are violated, the use or service shall be shut off from the building or place of such violation (even though two or more parties are receiving service through the same connection) and shall not be re-established except by order of the Village of Highland and on payment of all arrears, the expenses and established charges of shutting off and putting on, and such other terms as the Village of Highland may determine, and a satisfactory understanding with the party that no further cause for complaint shall arise. In case of such violation, the Village of Highland, furthermore, may declare any payment made for the service by the party or parties committing such violation, to be forfeited, and the same shall thereupon be forfeited. The right is reserved to the Village of Highland to change these said rules, regulations, and sewer rates from time to time as they may deem advisable; and make special rates and contracts in all proper cases.

The following rules and regulations for the government of licensed plumbers, sewer users and others, are hereby adopted and established.

PLUMBERS. No plumber, pipe fitter, or other person will be permitted to do any plumbing or pipe fitting work in connection with the sewer system without first obtaining permission from the Village of Highland. All service connections to the sewer main shall comply with State plumbing code.

USERS.

(1) MANDATORY HOOK-UP. The owner of each parcel of land adjacent to a sewer main on which there exists a building usable for human habitation or in a block through with such system is extended, shall connect to such system within 365 days of notice in writing from the Village of Highland. Upon failure to do so, the Village of Highland may cause such connection to be made and bill the property owner for such costs. If such costs are not paid by the following November 1, such notice shall be assessed as a special tax lien against the property, however, that the owner may within thirty (30) days after the completion of the work file a written option with the Village of Highland stating that he or she cannot pay such amount in one sum and ask that there be levied in not to exceed seven (7) equal installments and that the amount shall be so collected with interest at the current municipal borrowing rate per annum from the completion of the work, the unpaid balance being a special tax lien, all pursuant to Section 144.06, Wisconsin Statutes.

In lieu of the above, the Village of Highland, at its option, may impose a penalty for the period that the violation continues, after ten (10) days written notice to any owner failing to make a connection to the sewer system of a fine in the amount of \$50.00 per day. Upon failure to make such payment, said charge shall be assessed as a special tax lien against the property, all pursuant to Section 144.06.

This ordinance ordains that the failure to connect to the sewer system is contrary to the minimum health standards of the Village of Highland and fails to assure preservation of public health, comfort, and safety of the Village of Highland.

SEPTIC TANK PROHIBITED. The maintenance and use of septic tanks, holding tanks and other private sewage disposal systems within the area of the Village of Highland serviced by its sewer system are hereby declared to be a public nuisance and a health hazard. From and after the date this Ordinance is adopted, the use of septic tanks, holding tanks or any private sewage disposal system within the area of the Village of Highland serviced by the sewerage system shall be prohibited.

SEPTAGE DISPOSAL. Discharge of septage to the Village of Highland sewerage system is prohibited.

APPLICATION FOR SEWER SERVICE. Every person desiring to connect to the sewer system shall file an application in writing to the Village of Highland on such forms as is prescribed for that purpose. Blanks for such application will be furnished at the office of the Village of Highland. The application must state fully and truthfully all the wastes which will be discharged. If the applicant is not the owner of the premises, the written consent of the owner must accompany the application. Persons connected to the sewer system of the Village of Highland are referred to herein as "Users".

If it appears that the service applied for will not provide adequate service for the contemplated use, the Village of Highland may reject the application. If the Village of Highland approves the application, it shall issue a permit for services as shown on the application.

CONNECTION CHARGE. There is hereby levied and assessed upon each lot or parcel of land within the Village of Highland, a connection charge as determined by the Sewer Department. All applicants for building sewer permits, following adoption of this Ordinance, shall be assessed a connection charge. The purpose of the connection charge is to provide sufficient funds for the installation of a sewer lateral from the sewer main to the property line. In addition to the connection charge, each user shall pay the full cost of the lateral from the property line to their building.

- (1) The connection charge for single-family and multi-family residences shall be at least \$650.00, or the actual cost for installing if installation costs exceed \$650.00.

2008 - Kelly St  
actual cost for  
installation is  
\$900

- (2) The connection charge for non-residential customers discharging more than 1,000 gallons per day on an average daily basis, or discharging wastewaters having a concentration greater than "normal" wastewater concentrations shall be established by the Village on a case-by-case basis.
- (3) Industrial waste dischargers shall pay a special permit and inspection fee to the Village at the time the application is filed sufficient to cover Village engineering review expenses.
- (4) The connection charge shall be payable prior to issuance of the building sewer permit. Should the wastewater volume or characteristics not be sufficiently known at the time of application for the connection charge to be determined, an initial connection payment shall be made based on estimated values and an adjustment to the connection charge shall be made on the first anniversary of sewer system use, based upon metered water sales and measured wastewater quality where applicable. Any connection undercharge shall be immediately due and payable to the Village, whereas any connection overcharge shall be refunded to the customer.

TAP PERMITS. After sewer connections have been introduced into any building or upon any premises, no person shall make any alterations, extensions, or attachments, unless the party ordering such tapping or other work exhibits the proper permit for the same from the Village of Highland.

USER TO KEEP IN REPAIR. All users shall keep their own service pipes in good repair and protected from frost, as their own risk and expense, and shall prevent any unnecessary overburdening of the sewer system.

USER USE ONLY. No user shall allow other persons or other services to connect to the sewer system through their lateral.

VACATING OF PREMISES AND DISCONTINUANCE OF SERVICE. Whenever premises served by the system are to be vacated, or whenever any person desires to discontinue service from the system; the Village of Highland must be notified in writing. The owner of the premises shall be liable for any damages to the property of the system other than through the fault of the system or its employees, representatives, or agents.

USER TO PERMIT INSPECTION. Every user shall permit the Village of Highland or its duly authorized agent, at all reasonable hours of the day, to enter their premises or building to examine the pipes and fixtures, and the manner in which the drains, and sewer connections operate; and they must at all times, frankly and without concealment, answer all questions put to them relative to its use, all in accordance with this Ordinance and Section 196.71, Wisconsin Statutes.

**UTILITY RESPONSIBILITY.** It is expressly stipulated that no claim shall be made against the Village of Highland or acting representative by reason of the breaking, clogging, stoppage, or freezing of any service pipes; nor from any damage arising from repairing mains, making connections or extensions or any other work that may be deemed necessary. The right is hereby reserved to cut off the service at any time for the purpose of repairs or any other necessary purpose, any permit granted or regulations to the contrary notwithstanding. Whenever it shall become necessary to shut off the sewer within any district of the Village of Highland, the Village of Highland shall, if practicable, give notice to each and every consumer within the affected district, of the time when such service will be shut off.

## **EXCAVATIONS**

In making excavations in streets or highways for laying service pipe or making repairs, the paving and the earth removed must be deposited in manner that will result in the least inconvenience to the public.

No person shall leave any such excavation made in any street or highway open at any time without barricades; and during the night, warning lights must be maintained at such excavations.

In refilling the opening, after the service pipes are laid, the earth must be laid in layers of not more than nine inches in depth, and each layer thoroughly compacted to prevent settling. This work together with the replacing of sidewalks, ballast and paving, must be done so as to make the street as good, at least, as before it was disturbed, and satisfactory to the Village of Highland.

## **TAPPING THE MAINS**

No persons, except those having special permission from the Village of Highland or persons in their service and approved by them, will be permitted, under any circumstances to tap the mains or collection pipes. The kind and size of the connection with the pipe shall be that specified in the permits or order from the Village of Highland to ensure that new sewers and connections to the sewer system are properly designed and constructed.

Pipes should always to be tapped on top, and not within six inches (15 cm) of the joint, or within 24 inches (60 cm) of another lateral connection. All service connections to mains must comply with State plumbing code. Lateral connections to existing sewers shall be made with saddles and by coring the existing sewer or by inserting (cutting-in) a wye or tee into the existing sewer. The wye or tee shall be of the same pipe material as the existing sewer. The lateral/tee connection shall be made with approved adaptors or couplings.



## INSTALLATION OF HOUSE LATERALS

All service pipes (laterals) on private property shall be installed in accordance with State of Wisconsin Administrative Code Chapter ILHR 82 "Design, Construction, Installation, Supervision, and Inspections of Plumbing", especially, Section ILHR 82.04, "Building Sewers".

As required by Section ILHR 82.04(5), all laterals shall be inspected: "The building sewer and/or private interceptor main sewer shall be inspected upon completion of placement of the pipe and before backfilling and tested before or after backfilling."

**EXTENSIONS.** The Village of Highland shall extend sewer mains to a new person(s) in accordance with the following charges and the following conditions:

When an extension of a sewer main is required by the prospective user, said person shall make an application on such a form as is prescribed for that purpose for such an extension in writing to the Village of Highland by filing of such an application, the Village of Highland shall first determine the logical location of the next manhole or manholes. Next, the Village of Highland shall determine the length and location of the extension, taking into consideration the prospective demands for service, the capacity of downstream facilities, and the orderly development of the particular area. No extension shall be made for a distance less than to the next manhole. All sewer extensions shall be constructed in compliance with local and state laws, ordinances, and regulations.

The person who requests the extension shall pay the entire cost of said extension including the manhole or manholes and any required lift stations or other special appurtenances that are part of the extension. If more than one user is involved, the entire cost shall be divided among these users.

After making the decision as to the length and location of the extension and prior to the time of making the charge to the person(s), the Village of Highland shall determine the benefits to be received by any parcel that can be served by said extension. Before making a determination as to benefits received, the Village of Highland shall first divide the area to be served into logical building lots. The Village of Highland may consider the recommendations of the landowner in determining said building lots if the landowner as part of his or her application accompanies said application with a proposed division of said land into lots for sale or use. In determining the amount to be paid by the original users, if more than one user is involved, the division of the charge shall be made by considering each building lot as a separate user.

Payments are to be considered contributions to construction and after the original contribution if any future connection by reason other than to a lot owned by a party making a previous contribution, such user shall be required to pay to the Village of Highland their pro-rata share of the lot or lots owned by the new attaching user in the entire extension cost as if said user had been one of the original contributors.

In addition to the charge made as above provided to each lot, each user shall pay a connection charge, as well as the full cost of the lateral from the property line to their building.

ADDITIONAL AUTHORITY. The Village of Highland may at any time establish specific connection and lateral charges for any main not covered by other provisions in this Ordinance or when the Village of Highland has made an extension and the Village of Highland has failed to provide lateral or connection charges. It is further provided that the Village of Highland may amend or alter any connection or lateral charge after its establishment under the terms of this Ordinance or previous Ordinance or Resolutions.

## ARTICLE V

### REGULATIONS

#### GENERAL DISCHARGE PROHIBITIONS

No Discharger shall contribute or cause to be discharged, directly or indirectly, any of the following described substances into the wastewater disposal system or otherwise to the facilities of the Authority:

- a) Any liquids, solids or gases which by reason of their nature or quantity are, or may be, sufficient either alone or by interaction to cause fire or explosion or be injurious in any other way to the operation of the Village of Highland wastewater facilities or wastewater treatment works.
- b) Solid or viscous substances which will or may cause obstruction to the flow in a sewer or other interference with the operation of the wastewater system.
- c) Any wastewater having a pH less than 5.0 or higher than 10.0 or having any other corrosive property capable of causing damage or hazard to structures, equipment, or personnel of the system.
- d) Any wastewater containing toxic pollutants in sufficient quantity, either singly or by interaction to injure or interfere with any wastewater treatment process, constitute a hazard to humans or animals, or to exceed the limitation set forth in State or Federal Categorical Pretreatment Standards.

A toxic pollutant shall include, but not be limited to, any pollutant identified in the Toxic Pollutant List set forth in NR 215 of the Wisconsin Administrative Code.

- e) Any noxious or malodorous liquids, gases, or solids which either singly or by interaction are capable of creating a public nuisance or hazard to life or are sufficient to prevent entry into the sewers for their maintenance and repair.
- f) Any substance which may cause the Village of Highland effluent or treatment residues, sludges, or scums, to be unsuitable for reclamation and reuse or to interfere with the reclamation process.
- g) Any substance which will cause the Village of Highland to violate its WPDES and/or other Disposal System Permits.

- h) Any substance with objectionable color not removed in the treatment process, such as, but not limited to, dye wastes and vegetable tanning solutions.
- i) Any wastewater having a temperature which will inhibit biological activity in the Village of Highland treatment works resulting in interference; but in no case, wastewater with a temperature at the introduction into the Publicly Owned Treatment Works which exceeds 40°C (104°F).
- j) Any slugload, which shall mean any pollutant, including oxygen demanding pollutants (BOD, etc.), released in a single extraordinary discharge episode of such volume or strength as to cause interference to the Publicly Owned Treatment Works.
- k) Any unpolluted water including, but not limited to, non-contact cooling water.
- l) Any wastewater containing any radioactive wastes or isotopes of such half-life or concentration as exceed limits established by the Authority in compliance with applicable State or Federal regulations.
- m) Any wastewater which causes a hazard to human life or creates a public nuisance.
- n) Any stormwater, surface water, groundwater, roof run-off or surface drainage or any other connections from inflow sources to the sanitary sewer. Such waters may be discharged to a storm sewer or other waterway with permission of the Village of Highland.
- o) Any septage.

#### LIMITATIONS ON WASTEWATER STRENGTH

a) National Categorical Pretreatment Standards

National categorical pretreatment standards as promulgated by the U.S. Environmental Protection Agency shall be met by all Dischargers of the regulated industrial categories.

b) State Requirements

State requirements and limitations on discharges to the Publicly Owned Treatment Works shall be met by all Dischargers which are subject to such standards in any instance in which they are more stringent than federal requirements and limitations or those in this or any other applicable ordinance.

c) Right of Revision

The Authority reserves the right to amend this Ordinance to provide for more stringent limitations or requirements on discharges to the Publicly Owned Treatment Works where deemed necessary to comply with the objectives set forth in this Ordinance.

d) Dilution

No Discharger shall increase the use of potable or process water in any way, nor mix separate waste streams for the purpose of diluting a discharge as a partial or complete substitute for adequate treatment to achieve compliance with the standards set forth in this Ordinance.

e) Supplementary Limitations

No Discharger shall discharge wastewater containing concentrations [and/or mass limitations] of the following enumerated materials, exceeding the following values:

<u>Material</u>	<u>Concentration (mg/l)</u>
BOD <sub>5</sub>	1,000
Suspended Solids	1,000

The Authority may impose mass limitations on Dischargers which are using dilution to meet the Pretreatment Standards or Requirements of this Ordinance, or in other cases where the imposition of mass limitations is deemed appropriate by the Authority.

f) Accidental Discharges

Each Discharger shall provide protection from accidental discharge of prohibited or regulated materials or substances established by this Ordinance. Where necessary, facilities to prevent accidental discharge of prohibited materials shall be provided and maintained at the Discharger's cost and expense. Detailed plans showing facilities and operating procedures to provide this protection shall be submitted to the Authority for review, and shall be approved by the Authority before construction of the facility. Review and approval of such plans and operating procedures by the Authority shall not relieve the Discharger from the responsibility to modify its facility as necessary to meet the requirements of this Ordinance.

Dischargers shall notify the Authority immediately upon the occurrence of a "slugload", or accidental discharge of substances prohibited by this Ordinance. The notification shall include location of discharge, date and time thereof, type of waste, concentration and volume, and corrective actions. Any Discharger who discharges a slugload of prohibited materials shall be liable for any expense, loss or damage to the Village of Highland wastewater facilities or wastewater treatment works, in addition to the amount of any fines imposed on the Authority on account thereof under State or Federal law.

Signs shall be permanently posted in conspicuous places on Discharger's premises, advising employees whom to call in the event of a slug or accidental discharge. Employers shall instruct all employees who may cause or discover such a discharge with respect to emergency notification procedure.

## ARTICLE VI

### SEWER USER CHARGE SYSTEM

DEFINITIONS. The following terms shall have the following meaning under this Ordinance:

DEBT SERVICE CHARGES shall include all costs associated with repayment of debts incurred for the construction and/or rehabilitation of wastewater collection system and treatment facility.

NORMAL DOMESTIC STRENGTH WASTEWATER shall mean wastewater with concentrations of BOD<sub>5</sub> and suspended solid no greater than 250 and 250 milligrams per liter (mg/l) respectively.

NORMAL USER shall be a user who contributions to the sewerage system consist only of normal domestic strength waste water originating from a house, apartment, flat, or other living quarters occupied by a person or person constituting a distinct household, business or commercial enterprise.

O&M COSTS shall include all costs associated with the operation and maintenance of the wastewater collection and treatment facilities. These costs, including costs associated with extraneous (clear water) flows, shall be divided proportionately among the various sewer users.

REPLACEMENT COSTS shall include all costs associated with establishing a fund to accumulate the necessary resources to replace equipment as required to maintain capacity and performance during the design life of the facility. A separate segregated district replacement fund shall be established and used for only replacement of equipment.

SEWER SERVICE CHARGE is a service charge levied on users of the sewerage system for payment of capital expenses as well as the operation and maintenance costs, including replacement of said facilities.

POLICY. It shall be the policy of the Village of Highland to obtain sufficient revenues to pay the costs of the operation and maintenance of the sewerage facilities, including a replacement fund (i.e., a cash account to be used for future expenditures for obtaining or installing equipment, accessories or appurtenances which are necessary to maintain the capacity and performance of the sewerage system during the service life for which such facilities were designed and constructed), through a system of sewer service charges as defined in this Section. The system shall assure that each user of the sewerage system pays their proportionate share of the cost of such facilities.

BASIS FOR SERVICE CHARGE. The Village of Highland has provided the initial estimates of number of users, costs, etc., to calculate the first year's user charges.

Rates shall be adjusted, as required, to reflect actual number and size of users and actual costs.

*Amended Jan 1, 2002  
Effective Dec 31, 2003  
Amended Dec 29, 2003  
Effective Dec 31, 2004  
Amended Dec 29, 2007  
Effective Dec 31, 2008*

User Charge System and Sewer User Ordinance

*Village of Highland, Wisconsin*

SEWER SERVICE CHARGES. A sewer service charge is hereby imposed upon each lot, parcel of land, building, or premise served by the public sewer and wastewater facilities or otherwise discharging sewage, including industrial wastes, into the public sewerage system. The sewer service charge shall be calculated by the summation of a fixed debt service charge for payment of capital expenses, and a volume-based sewer use charge for payment of operation and maintenance costs and replacement costs. Such sewer service charge shall be payable as hereinafter provided and in amount determinable as follows:

The report written to develop the sewer user charge system for the Village of Highland is included at the end of this Ordinance as Appendix A.

- (1) Debt service charges shall be levied as follows:

USER CLASS

Residential	\$38.25/quarter
Commercial	\$38.25/quarter
Public - 1	\$9.56/quarter
Public - 2	\$841.50/quarter

- (2) Sewer use charges shall be levied as follows:

- (a) A basic sewer use charge for normal strength domestic wastewater with organic loadings not in excess of 250 mg/L for BOD or TSS shall be levied as follows:

Basic Sewer Use Charge                      \$2.15/1,000 gallons

- (b) A surcharge sewer use charge for wastewater discharges with organic loadings in excess of 250 mg/L for BOD or TSS will be levied as follows:

$$\text{Surcharge} = \frac{(\$0.47)(X \text{ mg/L} - 250 \text{ mg/L})(8.34) + (\$0.36)(Y \text{ mg/L} - 250 \text{ mg/L})(8.34)}{1000}$$

where:

X represents                      BOD concentration of wastewater, [mg/L]  
Y represents                      TSS concentration of wastewater, [mg/L]  
Surcharge represents              Additional charge (in addition to the basic sewer use charge)  
   assessed per thousand gallons treated.



- (c) If a user obtains all or part of their water from sources other than the water utility or if a user receives water that is not metered, all or any part of which is discharged into the public sewers, a flat rate sewer use charge based on average flow for the particular user class will be paid. Should the Village determine that the flat rate charge is less than the charge would be on a metered basis, the Village shall have the authority to set a higher rate based on estimated total usage and the metered rate schedule. Should the residential customer request it, a water meter shall be installed and the customer shall be charged on the same basis as commercial or industrial customers having private water supplies.
- (d) The total sewer use charge shall consist of the summation of the basic sewer use charge and any surcharge.

## ARTICLE VII

### CONTROL OF INDUSTRIAL WASTES

INDUSTRIAL DISCHARGES. If any waters or wastes are discharged, or proposed to be discharged to the public sewerage system which contain substances or possess the characteristics enumerated in Article V and which, in the judgement of the Village of Highland may be detrimental to the sewerage system, the Village of Highland may:

- (1) Reject the wastes.
- (2) Require pretreatment to an acceptable condition for discharge to the sewerage system.
- (3) Require a control over the quantities and rates of discharge.
- (4) Require payment to cover the added cost of handling and treating the waste not covered by existing taxes or sewer charges under the provisions of this Ordinance.

### CONTROL MANHOLES

- (1) Each person discharging industrial wastes into a public sewer shall construct and maintain one or more control manholes or access points to facilitate observation, measurement, and sampling their waste, including domestic sewage.
- (2) Control manholes or access facilities shall be located and built in a manner acceptable to the Village of Highland. If measuring devices are to be permanently installed, they shall be of a type acceptable to the Village of Highland.
- (3) Control manholes, access facilities, and related equipment shall be installed by the person discharging the industrial waste, at their expense, and shall be maintained by the person discharging the waste so as to be in safe condition, accessible, and in proper operating condition at all times. Plans for installation of the control manholes or access facilities and related equipment shall be approved by the Village of Highland prior to the beginning of construction.

MEASUREMENT OF FLOW. The volume of flow used for computing the sewer service and the cost recovery charges for wastewater disposal shall be based upon the water consumption of the person as shown in the records of meter readings maintained by the Village of Highland Water Utility.

PROVISIONS FOR DEDUCTIONS. In the event that a person discharging industrial waste into the public sewers produces evidence satisfactory to the Village of Highland that more than 10 percent of the total annual volume of water used for all purposes does not reach the public sewer, then the determination of the water consumption to be used in computing the waste volume discharged into the public sewer may be made a matter of agreement between the Village of Highland and the industrial waste discharger.

METERING OF WASTE. Devices for measuring the volume of waste discharged may be required by the Village of Highland if this volume cannot otherwise be determined from the metered water consumption records. Metering devices for determining the volume of water shall be installed, owned, and maintained by the person discharging the wastewater. Following approval and installation, such meters may not be removed without the consent of the Village of Highland.

#### WASTE SAMPLING

- (1) Industrial wastes discharged into the public sewers shall be subject to periodic inspection and a determination of character and concentration of said waste at least monthly. The determinations shall be required by the Village of Highland.
- (2) Samples shall be collected in such a manner as to be representative of the composition of the wastes. The sampling may be accomplished either manually or by the use of mechanical equipment acceptable to the Village of Highland. A minimum of at least monthly sampling shall be necessary to determine sewer service charges.
- (3) Testing facilities shall be the responsibility of the person discharging the waste and shall be subject to the approval of the Village of Highland or its duly authorized representatives at all times. Every care shall be exercised in the collection of samples to ensure their preservation in a state comparable to that at the time the sample was taken.

PRETREATMENT. When required, in the opinion of the Village of Highland, to modify or eliminate waste that are harmful to the structures, processes, or operation of the sewerage system, the discharger shall provide at their expense such preliminary treatment or processing facilities as may be required to render this waste acceptable for admission to the public sewers.

GREASE AND/OR SAND INTERCEPTORS. As required by the Village, grease, oil, and sand interceptors shall be provided by commercial or industrial discharger and shall be located as to be readily and easily accessible for cleaning and inspection. In the maintaining of these interceptors, the discharger shall be responsible for the proper removal and disposal by appropriate means of the captured material and shall maintain records of the dates and means of disposal which are subject to review by the Village of Highland. Any removal and hauling of the collected materials not performed by the discharger(s) personnel, must be performed by currently licensed disposal firms. Septage discharge into the Village of Highland sewerage system is prohibited.

## ANALYSES

- (1) All measurements, tests, and analyses of the characteristics of water and waste to which reference is made in this Ordinance shall be determined in accordance with the latest edition of "Standard Methods for the Examination of Water and Wastewater", published by the American Public Health Association and "Guidelines Establishing Test Procedures for Analysis of Pollutants," (1978, 40 CFR 136). Sampling methods, locations, times, durations, and frequencies are to be determined on an individual basis subject to approval by the Village of Highland.
- (2) Determination of the character and concentration of the industrial waste shall be made by the person discharging them or their agent, as designated and required by the Village of Highland. The Village of Highland may also make its own analyses of the wastes and these determinations shall be used as a basis for charges. If the person discharging the waste contests the determination, the Village of Highland may elect to have an independent laboratory determine the character and concentration of the waste. Said independent laboratory shall be certified under NR 149 and be acceptable to both the Village of Highland and the person discharging the waste. All costs incurred by the independent laboratory in making the determination shall be assumed by the discharger.

**SUBMISSION OF INFORMATION.** Plans, specifications, and any other pertinent information relating to proposed flow equalization, pretreatment, or processing facilities shall be submitted for review of the Village of Highland prior to the start of their construction if the effluent from such facilities is to be discharged into the public sewer.

**SUBMISSION OF BASIC DATA.** Within three (3) months after passage of this Ordinance, each person who discharges industrial wastes to a public sewer shall prepare and file with the Village of Highland a report that shall include pertinent data relating to the quantity and characteristics of the waste discharged to the sewerage system.

Similarly, each person desiring to make a new connection to a public sewer for the purpose of discharging industrial wastes shall prepare and file with the Village of Highland a report that shall include actual or predicted data relating to the quantity and characteristics of the waste to be discharged.

**EXTENSION OF TIME.** When it can be demonstrated that circumstances exist which would create an unreasonable burden on the person proposing to discharge a waste, to comply with the time schedule imposed herein, a request for extension of the time may be presented for consideration to the Village of Highland.

## ARTICLE VIII

### PAYMENT FOR CHARGES

PAYMENT AND PENALTY. The sewerage service charge shall be for the corresponding period of the water bills, and shall be payable to the Village of Highland not later than 20 days after the end of each period. A penalty of 10 percent of the net bill shall be added to all bills not paid by the date fixed for final payment. *amended 3/27/2001 m*

CHARGES A LIEN. All sewage charges shall be a lien upon the property serviced pursuant to Section 66.076(7), Wisconsin Statutes, and shall be collected in the manner therein provided.

DISPOSITION OF REVENUE. The amounts received from the collection of charges authorized by this Ordinance shall be credited to a sanitary sewerage account which shall show all receipts and expenditures of the sewerage system. Charges collected for replacement expenses shall be credited to a segregated, nonlapsing replacement account. These funds are to be used exclusively for replacement. When appropriated by the Village of Highland, the credits to the sanitary sewerage account shall be available for the payment of the requirements for operation, maintenance, repairs, and depreciation of the sewerage system consistent with NR 162.11. Any surplus outside the preview of NR 162.11 in said account, shall be available for the payment of principal and interest of bonds issued and outstanding, or which may be issued, to provide funds for said sewerage system, or part thereof, and all or a part of the expenses for additions and improvements and other necessary disbursements or indebtedness, and the Village of Highland may resolve to pledge each surplus or any part thereof for any such purpose. All present outstanding sewer system general obligation bonds, including the refunding bonds, shall be paid from this fund as to both principal and interest.

ADDITIONAL CHARGES. Additional charges shall be imposed upon each lot, parcel of land, building, or premises served by public sewer and wastewater facilities located outside the boundaries of the Village of Highland to equalize local capital costs. These extraterritorial sewer users shall be subject to an additional charge equal to 25% of the rate that would normally be calculated for users located within the Village limits. Such additional charges shall be added to the sewer bill for each billing period.

EXCESS REVENUES. Excess revenues collected from a user class will be applied to operation and maintenance costs attributable to that class for the next year.

**ARTICLE IX**

**AUDIT**

AUDIT. The Village of Highland shall have conducted from time to time an independent Audit, the purpose of which shall be to maintain the proportionality between users and user classes of the user charge system and to ensure that adequate revenues are available relative to increasing operation, maintenance and replacement costs and debt retirement. The findings and recommendations of this audit shall be published in the Village of Highland official newspaper.

## ARTICLE X

### VIOLATIONS AND PENALTIES

**DAMAGES.** No unauthorized person shall maliciously, willfully, or negligently break, damage, destroy, uncover, deface, or tamper with any structure of pertinence of equipment which is a part of the sewerage system. Any person violating this provision shall be subject to immediate arrest under charge of disorderly conduct.

**WRITTEN NOTICE OF VIOLATION.** Any person connected to the sewerage system found to be violating a provision of this Ordinance shall be served by the Village of Highland with a written notice stating the nature of the violation and providing a reasonable time for the satisfactory correction thereof. The offender shall, within the period of time stated in such notice, permanently cease all violations.

**ACCIDENTAL DISCHARGE.** Any person found to be responsible for accidentally allowing a deleterious discharge in to the sewerage system which cause damage to the sewerage system and/or receiving water body shall, in addition to a fine, pay the amount to cover all damages, both of which will be established by the Village of Highland.

**ACCIDENTAL DISCHARGE REPORTING.** Any person responsible for an accidental discharge, that may have a detrimental impact on the sewerage system, shall immediately report the nature and amount of the discharge to the Village of Highland.

**CONTINUED VIOLATIONS.** Any person, partnership, or corporation, or any officer, agent, or employee thereof, who shall continue any violation beyond the aforesaid notice time limit provided shall, upon conviction thereof, forfeit not less than fifty dollars, (\$50.00), together with the costs of prosecution. In default of payment of such forfeiture and costs, said violator shall be imprisoned in the County Jail for a period not to exceed five (5) days. Each day in which any violation is continued beyond the aforesaid notice time limit shall be deemed a separate offense.

**LIABILITY TO THE VILLAGE OF HIGHLAND FOR LOSSES.** Any person violating any provision of this Ordinance shall become liable to the Village of Highland for any expense, loss, or damage occasioned by reason of such violation which the Village of Highland may suffer as a result thereof.

**DAMAGE RECOVERY.** The system shall have the right of recovery from all persons, any expense incurred by said system for the repair or replacement of any part of the sewerage system damaged in any manner by any person by the performance of any work under their control, or by an negligent acts.

**PENALTIES.** Any person who shall violate any of the provisions of this Ordinance or rules or regulations of the Village of Highland or who shall connect a service pipe or discharge without first having obtained a permit therefor; or who shall violate any provisions of the Wisconsin Statutes, Wisconsin Administrative Code, or any other materials which are incorporated by reference, shall upon conviction thereof forfeit not less than \$50.00 nor more than \$1,000.00 and the costs of prosecution. This, however, shall not bar the Village of Highland from enforcing the connection duties set out in Article IV for mandatory hookup.

**APPEAL PROCEDURES.** Any user, affected by any decision, action, or determination, including cease and desist orders, made by the interpreting or implementing provisions of this Ordinance may file with the Village of Highland a written request for reconsideration within ten (10) days of the date of such decision, action, or determination, setting forth in detail the facts supporting the user's request for reconsideration. The Village of Highland upon receiving the request for reconsideration shall publish the request in the official newspaper. The Village of Highland shall render a decision on the request for reconsideration to the user in writing within fifteen (15) days of receipt of request. If the ruling on the request for reconsideration made by the Village of Highland is unsatisfactory, the person requesting reconsideration may, within ten days after notification of the action, file a written appeal with the Village of Highland.



**ARTICLE XI**

**VALIDITY**

REPEAL OF CONFLICTING ORDINANCES. All ordinances, resolution, orders or parts thereof heretofore adopted, enacted or entered in conflict with this Ordinance shall be and the same are hereby repealed.

SAVINGS CLAUSE. If any provisions of this Ordinance is found invalid or unconstitutional or if the application of this Ordinance to any person or circumstances is found to be invalid or unconstitutional, such invalidity or unconstitutionality shall not affect the other provisions or application of this Ordinance which can be given effect without the invalid or unconstitutional provision of application.

AMENDMENTS. The Village of Highland, through its duly qualified governing body, may amend this Ordinance in part or in whole whenever it may deem necessary.

ARTICLE XII

EFFECTIVE DATE

This Ordinance shall be in full force and effect from and after passage and publication and for all billings for wastewater discharge dated after July 1, 1997.

Passed and adopted by the Village Board of the Village of Highland, State of Wisconsin on the 5th day of May, 1997, by the following vote:

Ayes: 6

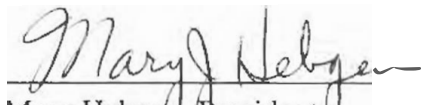
Nays: 0


Absent:

Approved this 5th day of May, 1997.

SIGNED:

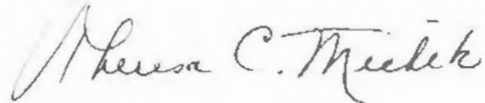
ATTEST:

  
Mary Hebgen, President

  
Theresa Michek, Village Clerk

Pages 1 - 32 were posted on May 8, 1997 with  
a note that the entire Ordinance may be  
viewed at the Village Hall during normal  
office hours at:

Highland Post Office  
Highland State Bank  
Village Bulletin Boards



**APPENDIX A**

**Sewer User Charge System**

# **APPENDIX A** **SEWER USER CHARGE SYSTEM**

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## EXECUTIVE SUMMARY

The following report developed a Sewer User Charge System to equally distribute the cost associated with the construction and operation and maintenance of a new wastewater treatment facility for the Village of Highland. The Sewer User Charge System developed a fixed quarterly debt service charge to cover construction costs and a volume usage charge to cover annual operation and maintenance costs. Although there are currently no customers discharging wastewater that exceeds normal wastewater concentrations, a surcharge system was developed in the event the Village decides to provide treatment for high strength industrial users.

The recommended Sewer User Service Charges for the Village of Highland are summarized in the table below. The Village's sewer ordinance should be modified to reflect the rates below.

Summary of Sewer User Service Charges

User Class	Fixed Quarterly Debt Service Charge per Customer	Basic Volume Usage Charge [cost/1000 gallons]	Surcharge [cost/1000 gal]
Residential	\$38.25	\$2.15	NA
Commercial	\$38.25	\$2.15	*
Public - 1	\$9.56	\$2.15	*
Public - 2	\$841.50	\$2.15	*
*Surcharge will be applied to the volume usage charge for customers discharge that exceeds 250 mg/L for BOD or TSS.			

Surcharge for users whose discharge exceeds normal concentrations defined in Article II. of the Village sewer ordinance will be calculated as follows:

$$\text{Surcharge} = \frac{(\$0.47)(X \text{ mg/L} - 250 \text{ mg/L})(8.34) + (\$0.36)(Y \text{ mg/L} - 250 \text{ mg/L})(8.34)}{1000}$$

where:

$X$  = BOD concentration of wastewater, [mg/l]

$Y$  = TSS concentration of wastewater, [mg/l]

Surcharge = Additional Charge assessed per thousand gallons treated.

The following report presents the methodology and detailed analyses used in determining the sewer user service charges presented above.

## **I. INTRODUCTION**

The Village of Highland is proposing to construct a new wastewater treatment facility to comply with WPDES permit requirements. The improvements will include the following major elements:

- Municipal Septic Tank
- Recirculation/Dosing Tank
- Recirculating Sand Filter
- Splitter Box
- Control Building.

The Village intends to finance the project through a Community Development Block Grant for Public Facilities and the Wisconsin Department of Natural Resources Clean Water Fund revolving loan program. This report will develop a User Charge System to demonstrate the Village's ability to recover the costs of constructing and operating a wastewater treatment facility and that those costs are distributed proportionately to all users of the system. The methodology and development of the user charge system are presented in the following sections.

**II. WASTEWATER VOLUMES & CHARACTERISTICS**

In order to develop the sewer service charge system, it is first necessary to assemble data pertaining to the number of sewer customers, water usage, wastewater flows, and wastewater loadings. The year used as a base for the development of the sewer service charge is 1995.

**A. Treatment Plant Customers**

There are currently 369 sewer utility customers discharging into the sanitary sewerage system. Customers served include residential, commercial, and public users. The distribution of customers according to user class is presented in Table 1.

**Table 1  
Wastewater Treatment Customer Distribution**

<b>User Class</b>	<b>Number of Users</b>
Residential	314
Commercial	47
Public - 1	6
Public - 2	2
<b>Total</b>	<b>369</b>

**B. Wastewater Volume**

Past water consumption records of the Highland Water Utility were used to estimate the amount of billable wastewater anticipated for 1998. During 1995 billable water consumption was 20,402,000 gallons per year. The distribution of billable wastewater according to user class is presented in the table below, Table 2.

**Table 2  
Distribution of Billable Wastewater**

<b>User Class</b>	<b>1998 Estimated Annual Billable Flow (thousands of gallons)</b>
Residential	15,789
Commercial	2,346
Public - 1	74
Public - 2	2,193
<b>Total</b>	<b>20,402</b>

Metered residential water customers in Highland have been using an average of 15,788,804 gallons of water per year. By dividing the average annual usage by the number of water users, the average annual usage per residential user can be calculated. This figure is known as a Residential Equivalent Unit (REU). In Highland, one REU is equal to 50,283 gallons per year.

$$\frac{15,788,804}{314} = 50,283 \text{ gallons/REU}$$

Using the REU flow determined above and metered water usage for each customer class, the number of REU's for each user class may be determined as follows:

$$\frac{\text{Metered Flow}}{50,283 \text{ gallons/REU}} = \text{REU}$$

The distribution of REU's for each user class is presented in the following table, Table 3.

**Table 3**  
**Residential Equivalent Units per User Class**

User Class	Number of Customers	REU
Residential	314	314
Commercial	47	47
Public - 1	6	1.5
Public - 2	2	44
<b>Total</b>	<b>369</b>	<b>406.5</b>

### **C. Wastewater Characteristics**

All sanitary sewer users in the Village generate wastewater with organic and solids loadings at or below the concentration of normal domestic sewage. However, the existing treatment facility will be upgraded in the near future to provide additional treatment capacity. Thus, the Village may decide to provide wastewater treatment for additional sources with loadings higher than that of typical domestic wastewater. To account for these potential discharges, typical pollutant loadings must be defined so a system of surcharges may be developed for users who discharge wastewater with loadings in excess of typical domestic wastewater. Normal strength domestic wastewater as defined in the Village's sewer ordinance is 250 mg/l for BOD and 250 mg/l for TSS. These loadings will be used as the baseline for determining normal domestic loadings.



**III. ANNUAL REVENUE REQUIREMENTS****A. Operation and Maintenance Costs**

To determine Operation and Maintenance expenses for the new facility, past records and O & M data from other similar sized facilities were examined. The anticipated 1998 Operation and Maintenance expenses are summarized below in Table 4. Comparison of the anticipated future O & M expenses with current O & M expenses indicates that operation of the new facility will result in higher Operation and Maintenance expenses. The higher expense may be attributed to increased effluent monitoring requirements, power consumption, sludge disposal costs, and operational requirements.

**Table 4**  
**Estimated Operation and Maintenance cost for Year 1998**

<b>Item</b>	<b>Expense</b>
Labor	\$8,000
Laboratory Testing	\$6,000
Electrical Power	\$7,000
Septic Tank Pumping	\$2,000
Sewer Maintenance	\$3,000
Operating Supplies & Misc. Expenses	\$3,500
Bookkeeping	\$5,000
Office Supplies	\$500
License	\$350
Insurance	\$2,000
Meters and Meter Reading	\$1,650
<b>Total O &amp; M</b>	<b>\$39,000</b>

**B. Annual Equipment Replacement Costs**

It is anticipated that some equipment will have to be replaced during the service life of the treatment facility. An amount equal to the annual equipment cost should be deposited in a special interest bearing equipment replacement account for use as necessary. Interest earned on the account is expected to offset the effect of inflation on the price of the equipment. Table 5 summarizes a list of equipment with a service life less than 20 years along with the annualized replacement cost for each item.

**Table 5**  
**Estimated Equipment Replacement Cost**

<b>Item</b>	<b>Total Cost</b>	<b>Service Life</b>	<b>Annual Sum</b>
Recirculation Pumps and Controls	\$36,000	15	\$2,400
Portable Pump	\$2,500	15	\$167
Sub. Well Pump	\$2,500	15	\$167
Samplers	\$9,000	15	\$600
Flowmeters	\$8,000	10	\$800
Safety Equipment	\$4,000	10	\$400
DO Meter	\$1,000	10	\$100
pH Meter	\$500	10	\$50
Rototiller	\$800	15	\$53
<b>Total</b>			<b>\$4,737</b>

The Village's Sewer Equipment Replacement Fund has a balance of \$45,816.62 (as of December 31, 1996). This balance more than fully funds the future replacement of the Village's existing sewer related equipment (including lift station pumps).

### **C. Debt Service**

Per the Village Clerk, the Village of Highland wastewater department currently has approximately \$14,000 of debt. The existing debt service will be retired by 1998. The Village currently has the funds to retire this existing debt service. Therefore, the existing debt service will not be included in the calculation of future required annual revenue.

It is estimated that the total project cost for construction of a new wastewater treatment facility is \$1,429,485. The Village was awarded a Block Grant in the amount of \$628,963. The remainder of the project cost will be financed through a Clean Water Fund loan from the Wisconsin Department of Natural Resources. Table 6 shows the breakdown in financing.

**Table 6**  
**Project Financing for Village of Highland**

**Total Estimated Project Cost**

Construction Contract	\$1,197,143
Contingencies (5%)	\$59,857
Equipment to be purchased by Village:	
Rototiller	\$800
DO, pH Meter	\$1,500
Step 2 Engineering:	\$71,196
Step 3 Engineering:	
Project Inspection Fees	\$53,122
Other Engineering Fees	\$38,617
Administrative Expenses	\$2,250
CWF Closing Costs	\$5,000
<b>Total</b>	<b>\$1,429,485</b>

**Funding Sources**

CDBG	\$628,963
Grant Admin. Expenses	(\$30,000)
<b>Total</b>	<b>\$598,963</b>

<b>Total Amount to be Financed (CWF)</b>	<b>\$830,522</b>
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The improvements proposed for the Village of Highland fall under the definition of "compliance maintenance" or "new or changed limits", therefore the interest rate offered will be 55% of the market rate. The interest rate is subject to adjustment for the portion of the project intended for industrial flows or capacity beyond 10 years, resulting in a composite interest rate. To determine the portions of the project subject to below market interest rate and market interest rate, a parallel cost ratio is calculated. For this project, since a new treatment facility is being constructed primarily to meet more stringent WPDES requirements, the parallel cost ratio (cost to provide treatment facilities for current domestic users divided by total project cost) was calculated as 0.9779. This parallel cost ratio was approved by the DNR on December 9, 1995. Using a parallel cost ratio of 0.9779 and a market interest rate of 5.60%, the composite interest rate for this project may be calculated as follows:

$$\text{Composite Interest Rate} = \frac{(5.60\%)(0.55)(0.9779) + (5.60\%)(1.00 - 0.9779)}{(1.00)} = 3.136\%$$

The loan for \$830,522 will be financed over the next 20 years at the composite interest rate of 3.136%. The resulting annual debt service payment for this loan is \$56,527. Clean Water Fund regulations require 110% debt service coverage. Therefore, the total annual debt service requirement is \$62,180.

#### **D. Total Revenue Requirements**

During the first year of operation of the new wastewater treatment facility, revenue will be required to cover total costs associated with operation, maintenance, equipment replacement, and debt service. A summary of the costs is shown below in Table 7.

**Table 7**  
**Summary of Total Revenue Required in Year 1998**

Operation and Maintenance	\$39,000
Equipment Replacement	\$4,737
Debt Service	\$62,180
<b>Total</b>	<b>\$105,917</b>

#### IV. PROPOSED SEWER SERVICE CHARGES

The Sewer Service Charge is designed to generate sufficient revenue to meet the annual expenses associated with the wastewater treatment system. The charge is comprised of a user fee, which covers operation, maintenance, and equipment replacement, and a debt service charge.

##### A. User Charges

Expenses for the annual operation, maintenance, and equipment replacement are distributed between users on the basis of quantity and quality of wastewater discharged. Wastewater discharged with a strength equivalent or less than typical domestic wastewater will be assessed a basic sewer user service charge that is based on flow. Users that discharge wastewater with loadings higher than typical domestic wastewater will be assessed a surcharge in addition to the basic sewer user service charge. The basic sewer user service charge is calculated as follows:

$$\text{Required Revenue} = \text{Operation and Maintenance} + \text{Equipment Replacement}$$

$$= \$43,737$$

$$\text{Wastewater Flow} = 20,402 \text{ thousand gallons per year}$$

$$\begin{aligned} \text{Basic Sewer} \\ \text{Service User Charge} &= \$43,737 / 20,402 \end{aligned}$$

$$= \$2.15 \text{ per thousand gallons}$$

To develop a method of determining appropriate surcharge for discharger's exceeding allowable wastewater loadings it is necessary to determine what portion of a wastewater treatment costs is associated with flow, BOD, and total suspended solids. Based on similar municipalities, approximately 20% of treatment cost is attributed to flow, 45% to BOD, and 35% to TSS. Using these distributions, the basic sewer service charge may be broken down as follows, Table 8.

**Table 8**  
**Unit Cost Breakdown for Basic Sewer Service Charge**

Parameter	Percentage	Cost/1000 gallons
Flow	20%	\$0.43
BOD	45%	\$0.97
TSS	35%	\$0.75
<b>Totals</b>	<b>100%</b>	<b>\$2.15</b>

For normal strength wastewater, 1,000 gallons contains about 2.09 pounds of BOD and suspended solids. Therefore, the sewer service charge for BOD and TSS would be \$0.47 and \$0.36 per pound discharged, respectively. Surcharge, which is defined as the additional charge assessed per thousand gallons to treat wastewater exceeding normal strength domestic wastewater, may be calculated as follows:

$$\text{Surcharge} = \frac{(\$0.47)(X \text{ mg/L} - 250 \text{ mg/L})(8.34) + (\$0.36)(Y \text{ mg/L} - 250 \text{ mg/L})(8.34)}{1000}$$

where:

$X$  = BOD concentration of wastewater, [mg/l]

$Y$  = TSS concentration of wastewater, [mg/l]

$\text{Surcharge}$  = Additional Charge assessed per thousand gallons treated.

The Village's sewer ordinance requires high strength industrial users to install and maintain a sampling manhole and equipment so samples may be collected by the sewer department for analysis. The cost of the sampling manhole, equipment and analysis will be charged to the customer.

The total sewer service user charge would be calculated as follows:

$$\text{Sewer Service User Charge} = \text{Basic Sewer Service User Charge} + \text{Surcharge}$$

Since the Village currently does not provide treatment for dischargers that exceed typical domestic wastewater loadings, no surcharge needs to be assessed at this time. The Sewer Service User Rate would then be \$2.15 per thousand gallons treated.

## **B. Debt Service Charge**

The annual debt service costs are distributed to all users on an equal basis. To determine the appropriate fixed service charge for each user class, Residential Equivalent Units are used. Thus, fixed charges for each customer will vary but will be equal on a REU basis. As shown in Table 3, the Village currently provides service for about 406.5 REU's. Debt service charge per REU is determined as follows:

$$\text{Debt Service per REU} = (\text{Annual Debt Service})/(\text{Number of REU's})$$

$$= (\$62,180)/(406.5) = \$153.00/\text{REU} = \$38.25 \text{ per quarter per REU}$$

Using the number of REU's for each customer, the fixed charge for each user may be determined as follows.

$$\text{Fixed Quarterly Charge} = (\# \text{ of REU's})(\$38.25 \text{ per quarter per REU})/(\# \text{ of Customers})$$

The fixed quarterly charges per customer are summarized in Table 9.

**Table 9**  
**Summary of Fixed Quarterly Charge for Each User Class**

User Class	# of Customers	REU's	Fixed Quarterly Charge per Customer
Residential	314	314	\$38.25
Commercial	47	47	\$38.25
Public - 1	6	1.5	\$9.56
Public - 2	2	44	\$841.50

### C. Sewer Service Charges

The proposed sewer service charges, including fixed and usage based charges, for the Village of Highland are summarized in the table below, Table 10.

**Table 10**  
**Summary of Sewer User Service Charges**

User Class	Fixed Quarterly Debt Service Charge per Customer	Basic Volume Usage Charge [cost/1000 gallons]	Surcharge [cost/1000 gal]
Residential	\$38.25	\$2.15	NA
Commercial	\$38.25	\$2.15	*
Public - 1	\$9.56	\$2.15	*
Public - 2	\$841.50	\$2.15	*

\*Surcharge will be applied to the volume usage charge for customers discharge that exceeds 250 mg/l for BOD and TSS. Currently, no users are subject to a surcharge.

**D. Costs vs. Revenue Analysis**

On the basis of the factors used to develop the Sewer Service Charges, sufficient revenue will be generated to fund the estimated expenses. Shown below in Table 11 is a comparison of estimated costs and revenues for the first year of operation.

**Table 11**  
**Annual Costs vs. Revenues**

**Estimated Annual Costs**

Operation and Maintenance	\$39,000
Equipment	\$4,737
Debt Service	\$62,180
Total Costs	<b>\$105,917</b>

**Estimated Annual Revenues**

Minimum Charge for Debt Service	
Residential = $\$38.25 \times 314 \times 4$	\$48,042
Commercial = $\$38.25 \times 47 \times 4$	\$7,191
Public - 1 = $\$9.56 \times 6 \times 4$	\$230
Public - 2 = $\$841.50 \times 2 \times 4$	\$6,732
O & M, Replacement Flow Charge	\$43,864
= $(20,402) \times \$2.15$	
Total Revenues	<b>\$106,059</b>

**E. Demonstration of Equity**

Federal and State regulations require that the Village demonstrate that the user charge for operation, maintenance, and equipment replacement is equitable. A proportionality check comparing percent total usage and percent of total charges for each user class is summarized in Table 12. As shown in the table the system is 100% proportional.



**Table 12**  
**Proportionality Check**

<b>User Class</b>	<b># of Users</b>	<b>Annual Volume Usage</b>	<b>Percent Usage</b>	<b>Annual Charges</b>	<b>Percent Charge</b>
Residential	314	15,789	77.39%	\$81,988	77.30%
Commercial	47	2,346	11.50%	\$12,235	11.54%
Public - 1	6	74	0.36%	\$389	0.37%
Public - 2	2	2,193	10.75%	\$11,447	10.79%
Total	369	20,402	100%	\$106,059	100%